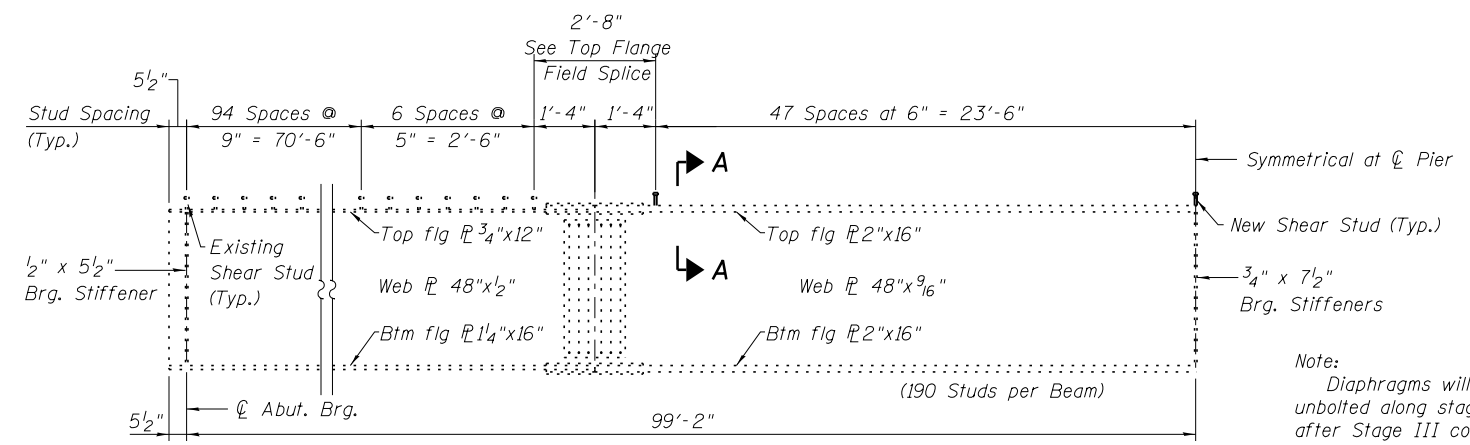
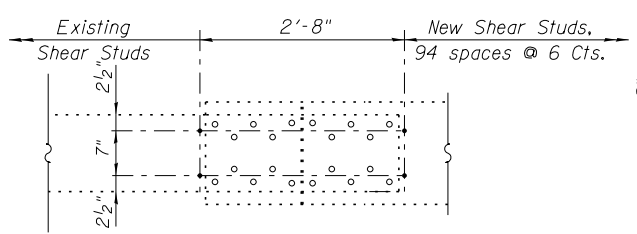


PLAN

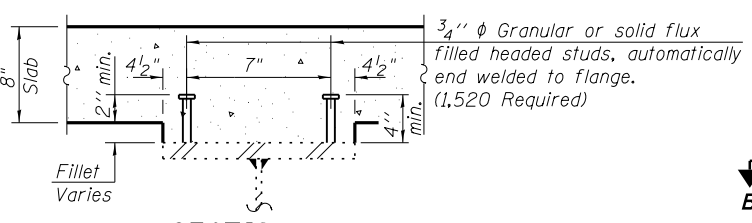


ELEVATION OF GIRDER
(Typical All Girders)

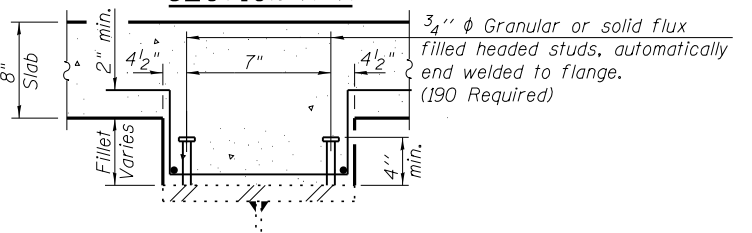


TOP FLANGE FIELD SPLICE

(Solid Circles indicate Shear Studs
Open Circles indicate Splice Plate Bolts)

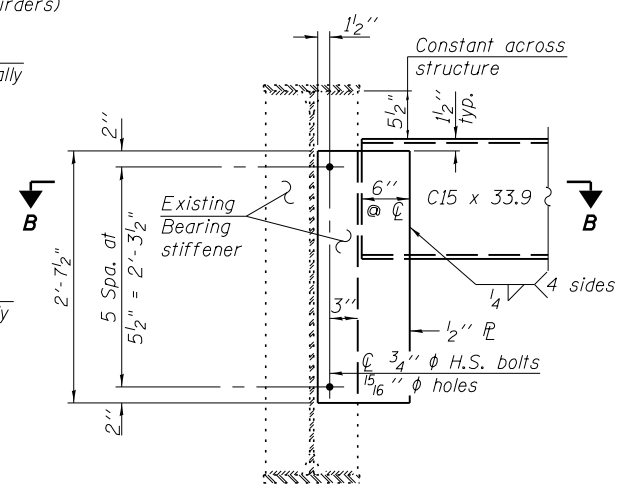


SECTION A-A



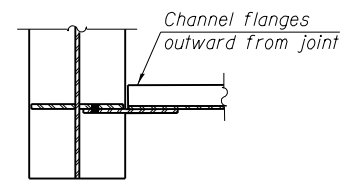
SECTION A-A

(Deep Fillet Section @ C Beam 5)



END DIAPHRAGM

Note: Two hardened washers required for each set of oversized holes.



SECTION B-B

INTERIOR BEAM MOMENT TABLE		
	0.4 Sp. 1 or 0.6 Sp. 2	Pier
I_s	(in ⁴) 20,679	45,205
$I_c(n)$	(in ⁴) 60,462	52,030
$I_c(3n)$	(in ⁴) 42,912	52,030
S_s	(in ³) 1,029	1,739
$S_c(n)$	(in ³) 1,462	1,833
$S_c(3n)$	(in ³) 1,340	1,833
ρ	(k/')	1.030
$M \rho$	(k)	601
$s \rho$	(k/')	0.528
$M_s \rho$	(k)	330
M_L	(k)	866
M_{1M}	(k)	193
$^5_3 [M_L + M_1]$	(k)	1,765
M_a	(k)	3,505
M_u	(k)	5,255
$f_s \rho$ non-comp	(ksi)	7.0
$f_s \rho$ (comp)	(ksi)	3.0
$f_s ^5_3 [M_L + M_1]$	(ksi)	14.5
f_s (Overload)	(ksi)	24.5
f_s (Total)	(ksi)	-
VR	(k)	48.9

*Compact section
**Braced non-compact and partially braced section

INTERIOR BEAM REACTION TABLE		
	Abuts.	Pier
$R \rho$	(k) 53.2	206.8
R_L	(k) 45.1	74.7
R_I	(k) 10.1	16.7
R_{Total}	(k) 108.4	298.2

I_s, S_s : Non-composite moment of inertia and section modulus of the steel section used for computing f_s (Total and Overload) due to non-composite dead loads (in.4 and in.3).
 $I_c(n), S_c(n)$: Composite moment of inertia and section modulus of the steel and deck based upon the modular ratio, "n", used for computing f_s (Total and Overload) due to short-term composite live loads (in.4 and in.3).
 $I_c(3n), S_c(3n)$: Composite moment of inertia and section modulus of the steel and deck based upon 3 times the modular ratio, "3n", used for computing f_s (Total and Overload) due to long-term composite (superimposed) dead loads (in.4 and in.3).

ρ : Un-factored non-composite dead load (kips/ft.).
 $M \rho$: Un-factored moment due to non-composite dead load (kip-ft.).
 $s \rho$: Un-factored long-term composite (superimposed) dead load (kips/ft.).
 $M_s \rho$: Un-factored moment due to long-term composite (superimposed) dead load (kip-ft.).
 M_L : Un-factored live load moment (kip-ft.).
 M_1 : Un-factored moment due to impact (kip-ft.).
 M_a : Factored design moment (kip-ft.).
 $1.3 [M \rho + M_s \rho + \frac{5}{3} (M_L + M_1)]$
 M_u : Compact composite moment capacity according to AASHTO LFD 10.50.1.1 or compact non-composite moment capacity according to AASHTO LFD 10.48.1 (kip-ft.).
 f_s (Overload): Sum of stresses as computed from the moments below (ksi).
 $M \rho + M_s \rho + \frac{5}{3} (M_L + M_1)$
 f_s (Total): Sum of stresses as computed from the moments below on non-compact section (ksi).
 $1.3 [M \rho + M_s \rho + \frac{5}{3} (M_L + M_1)]$
 VR: Maximum $\frac{1}{2}$ + impact horizontal shear range within the composite portion of the span for stud shear connector design (kips).

BILL OF MATERIAL

Item	Unit	Total
Furnishing and Erecting Structural Steel	Pound	5,540
Structural Steel Removal	Pound	6,900
Stud Shear Connectors	Each	1,710

Notes:
 Two hardened washers required for each set of oversized holes.
 Existing end diaphragms at abutments shall be removed and replaced. Cost included with Structural Steel Removal.
 Field drill $1\frac{5}{16}$ " ϕ holes for $3/4$ " ϕ bolts.
 Contractor will be responsible for checking to see if proposed hole locations conflict with existing holes. In such a case, match existing holes.

FILE NAME = TR420 over FAI-72.dgn	USER NAME =	DESIGNED - SAL	REVISED -
		CHECKED - MTH	REVISED -
		DRAWN - TJW	REVISED -
		CHECKED - MTH	REVISED -

STATE OF ILLINOIS
DEPARTMENT OF TRANSPORTATION

FRAMING PLAN & BEAM DETAILS
OVERPASS RD. (TR-420) OVER F.A.I.-72 - S.N. 084-0154

SHEET NO. 15 OF 25 SHEETS

F.A.I. RTE.	SECTION	COUNTY	TOTAL SHEETS	SHEET NO.
72	(84-10-1,2) R5-3	SANGAMON	194	162
FED. ROAD DIST. NO. 6 ILLINOIS FED. AID PROJECT			CONTRACT NO. 72C90	